

CORRESPONDENCE

RELATING

TO THE

Montreal, Ottawa & Georgian Bay Canal.

"The Ottawa country abounds in iron ore of the richest description. Its forests of pine are inexhaustible. Its water power is not only unlimited in capacity, but is available to its fullest extent at numberless stages upon the route. By the opening of the projected navigation this great manufacturing agent would be brought into comparative proximity to the granaries of Lake Michigan, and would immediately be turned to account in preparing the cereals of the west for the markets of the east. With such a combination of advantages in possession or in prospect, it is surely not difficult of belief that the valley of the Ottawa is destined to be not only the workshop of Canada, but one of the chief manufacturing districts of America."

WALTER SHANLY



OTTAWA :

THOBURN & Co., PRINTERS

1895

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D. McN. STAUFFER,	} Editors.	GEO. H. FROST, Business Manager.	C. W. BAKER,	} Associate
A. M. WELLINGTON,		F. P. BURT, Assistant Manager.	E. E. R. TRATMAN,	
			M. N. BAKER,	

ENGINEERING NEWS.

Tribune Building.

NEW YORK, Sept. 27th, 1893.

MCLEOD STEWART, ESQ.,
14 Metcalfe St, Ottawa, Ont.

DEAR SIR :—

Replying to yours of 23rd inst., I do not think I care to go into the details of the Ottawa project at the present time any more fully than I have done already. I will give you the caution, however, that Mr. Corthell's discussion of it is a more or less biased one in favor of a ship railway to Toronto. My conviction that the Ottawa River affords the best opportunity for a well-planned ship canal on the globe is a fixed one, but I do not expect that anything will be done on it for some years to come.

Yours truly,

A. M. WELLINGTON.

THE CANADIAN PACIFIC RAILWAY CO.

MONTREAL, 9th October, 1894.

DEAR MR. STEWART :—

I have your letter of the 6th. A canal by way of the Ottawa River and Lake Nipissing to Georgian Bay would not, in my opinion, injure the Canadian Pacific in the least. I expressed my views on this subject a year or two ago to the Hon. Mr. Ouimet, who, I think, remembers them, and will be able to set at rest any fear of opposition on my part.

Yours very truly,

W. C. VANHORNE.

MCLEOD STEWART, ESQ.,
Ottawa.

OFFICE OF THE MINISTER OF PUBLIC WORKS OF CANADA.

OTTAWA, 22nd Oct., 1894.

DEAR MR. STEWART:—

Referring to our conversation of the other day *in re* the Ottawa River and Lake Nipissing Canal, I may say that I have taken communication of Sir Wm. VanHorne's letter of the 9th inst., on the same subject. I have several times discussed that question with Sir William, and he always expressed himself very favourable to the building of the canal, insisting that it is the natural route between the upper lakes and the St. Lawrence, and that it should be opened at the earliest date possible. He also believes that the country would be greatly benefitted by it, and that it would be of assistance and certainly of no injury to his Company.

I am glad to tell you that any plan or information that may be in the possession of this department will be at your disposal.

I am a believer myself in the feasibility of the scheme and in its financial success.

Yours sincerely,

J. A. OUIMET.

MCLEOD STEWART, ESQ.
Ottawa.

Unofficial.

GOVERNMENT TELEGRAPH SERVICE.

DEPARTMENT OF PUBLIC WORKS.

OFFICE OF THE GENERAL SUPERINTENDENT.

OTTAWA, CANADA, 3rd May 1895.

DEAR MR. STEWART:—

In regard to the electrical possibilities of the route of the proposed canal, about which you enquired of me yesterday, I have given the question more careful consideration than appeared to me was called for at first sight, as I understand the development of water power for industrial purposes along the route is one of the main features of the scheme.

If the water power that is assumed to exist were made available, it

might obviously be utilized electrically to haul along, by overhead or sidetrack motors, the vessels or canal boats wherever the canal cuttings occur; and thus obviate the disintegration of the sides and consequent shallowing that it is understood goes on owing to the disturbance occasioned by the propellers and side-wheels of steamboats. This however, would be but an incidental in the operation of the canal.

As to the general aspect of the matter so many instance have been afforded of the facility with which water power can be developed and economically utilized, through the medium of electrical machinery, that there is hardly room for questioning the practicability of creating similar conditions along the route proposed. Sometimes, however, the dimensions of a particular water power are too easily mistaken, and to obtain a definite prospectus for that part of the scheme it would by long odds be advisable to get at the facts and figures as regards the volume of water and differences of level at promising points. Taken roughly, something like 1,000 cubic feet of water through a fall of one foot per minute is what represents a single horse power; so the supply must in any case be very considerable to be useful.

We have before us what a phenomenal fall such as the Chaudiere can afford; while the works at Perth present a fair notion of what can be expected from comparatively limited sources.

Where the available power is small it can be used locally to the best advantage, and where it happens to be great it can be transmitted by wire for distances that are only limited by the comparative cost of operating steam plants at the places reached. So that if it is found a considerable amount of water power can be made available at any particular point where there is no local demand for it it can be applied to run dynamos which will turn it out in the form of electrical energy, with very little loss in the conversion, and this energy can be conveyed for the operation of lights, motors, etc., in another locality not too remote.

I am, dear Mr. Stewart,

Yours faithfully,

D. H. KEELEY.

McLEOD STEWART, ESQ.,
Ottawa.

INLAND REVENUE, CANADA.

CHIEF ELECTRICIAN'S OFFICE,

OTTAWA, May 20th, 1895.

MY DEAR SIR:—

Referring to the conversation we had recently in regard to the electrical features and possibilities of the numerous water powers along the route of the proposed canal, I might state that I have during the past twenty-five years travelled many times over the Ottawa River country between Montreal and Georgian Bay and am thoroughly well acquainted with that river and its tributaries.

It would, I think, be difficult to find—on this continent at any rate—a similar succession of waterfalls, along a like distance and through a country so well favored for manufacturing purposes.

There are, I believe, twelve or thirteen of these falls or rapids along the route, to say nothing of the tributaries, all of which are capable of being developed to an extent that would give an output of electrical energy almost equal to that of Niagara Falls.

With the methods of long distance distribution of the electric current that are now being perfected by Tesla and others, there is no reason why sufficient energy should not be generated along the Ottawa and its tributaries, not only for local purposes on the route, but for the operation of the Canadian Pacific and Canada Atlantic and Parry Sound Railways between Georgian Bay and Montreal, and also for purposes of power and light for the City of Montreal itself.

If we take into consideration the amount of work done at Ottawa, by only a small fraction of the water that passes over the Chaudiere Falls, we may in some slight degree realize the vast amount of energy running to waste along the course of the Ottawa River.

Faithfully yours,

ORMOND HIGMAN,

*M. Inst. E. E.**A. M. Can. Soc. C. E.*

MCLEOD STEWART, ESQ.,
Ottawa.

C. BERKELEY POWELL, Gen. Manager.
HON. E. H. BRONSON, President.

OFFICE : Russell House Block.
WORKS : At the Chaudiere.

THE STANDARD ELECTRIC CO. OF OTTAWA, Ltd.

POWER AND LIGHT BY ELECTRICITY.

OTTAWA, ONT., April 1st, 1894.

MCLEOD STEWART, ESQ.,

Of the Montreal, Ottawa & Georgian Bay Canal Co.

MY DEAR SIR :—

Since my conversations with you in regard to your canal scheme I have given the matter much thought and consideration.

The revenue from the hydraulic power to be used in generating electric energy along the route should be very large. You will be able to get so much power at different points along the route that your Company will be able to sell power at a profit to the Canadian Pacific Railway sufficient to operate the trains of that railway from Montreal to Winnipeg. These trains could be operated for fully 30 per cent. less than it now costs to run them by steam. On the prairies the Canmore coal could be used to generate electric power to continue the electric train service from Winnipeg to Vancouver, by using large stationary steam plants at suitable intervals. Besides the feature of electric railway development there is also that of developing the mines in the Nipissing and Algoma districts, the smelting of iron, the extraction of copper and nickel in the Sudbury district as well as gold and silver quartz mining. All would receive a great impetus from the construction of this canal.

Yours truly,

C. BERKELEY POWELL.

J. W. McRAE, President.

T. AHEARN, Man-Dir.

JAMES D. FRASER, Sec'y-Treas.

W. Y. SOPER, Vice-President.

J. E. HUTCHESON, Supt.

THE OTTAWA ELECTRIC RAILWAY CO.

OTTAWA, Nov. 13th, 1894.

DEAR SIR :—

In reply to your inquiry *re* your ship canal project with respect to water power along its route, I beg to state that in my opinion there will certainly be a very large amount of water power available wherever locks are situated, and this power can be converted into electricity which may be transmitted to distances and utilized for lighting and power purposes.

Wishing you success in your laudable undertaking,

I am,

Yours very truly,

T. AHEARN.

MCLEOD STEWART, ESQ.,
Ottawa.

COTEAU LANDING, P. Q., May 30, 1894.

MCLEOD STEWART, ESQ.,
Barrister &c., Ottawa.

DEAR SIR :—

Referring to yours of May 30th, asking explicit answers to certain questions: I beg to say that such surveys as have been made are of comparatively remote dates and not made under the light of modern practice; consequently, estimates must be considered as merely approximate for the present, although I have always endeavoured to avoid exaggeration, believing the hard facts to be amply satisfactory in them-

selves. So, in regard to traffic, I believe that a canal capable of carrying lake vessels to Montreal, direct through quiet waters, would soon absorb a large trade from the West now carried exclusively by rail ; as for instance, cattle and hogs, and that the great cheapness of the route would create traffic which is now impossible, but I have in estimating, taken only that actually extant to which may be reasonably expected to be diverted from the present water route to Buffalo.

To take your questions *seriatim* :

1st. The greater portion of the route is admirably adopted for a waterway, having rocky walls which approach one another very closely at points and affording magnificent opportunities for the creation of reaches of slack water, by means of dams across the valleys of streams. The amount of actual canal excavation being comparatively small. The difference in cost between a route for 18-foot navigation, and one for 9-foot navigation is not nearly as great as in ordinary cases. If made for the latter, probably 75% would be available for the former without further improvement. My estimate would be \$20,000,000 and \$30,000,000 respectively.

2nd. The advantages of the route are, I think, clearly shown on the map I have sent you. The directness and shortness, both in line and distance over any other possible route. The possibility of obtaining a considerable draught of water without the enormous cost entailed upon the St. Lawrence route, and the consequent possibility of bringing the larger lake vessels direct from Chicago to Montreal or Duluth to Montreal without lightening or transshipment. The substitution of deep quiet waterways for the intricacies and dangers attendant on the navigation of the south end of Lake Huron, the St. Clair River and flats. The shallow turbulent Lake Erie and the currents and shoals of the upper St. Lawrence and Lake St. Francis. Its remoteness from the boundary rendering it safe from interference in case of international complications, and of great military importance to the empire, generally. The possibility on account of the shortness and protected character of the route enormously stimulating trade with the Western States by carrying cattle, hogs, &c., between Chicago and Montreal without injury, and through cool latitudes in 100 hours, or nearly railway time, at 1-10th to 1-5th the cost of railway transportation, and permitting of much better care of them being taken during transit.

The facilitation and cheapening of the transit of timber from the Upper Ottawa to the seaboard.

3rd. The latest statistics I remember seeing show twenty-two millions of tons passing Detroit annually and about ten millions through the Sault Ste. Marie Canal. The latter appears to be about one-half iron ore seeking Cleveland, and returning as coal, and some of the former also represents coal shipped to the West from Buffalo; but making every allowance I cannot estimate less than nine or ten millions of tons which would be immediately diverted over the shorter route were the canal to be opened to-morrow. This is rapidly growing year by year. Add to this the lumber traffic of the Ottawa. A vast volume of trade which would be diverted from the American railways which can barely compete with the present circuitous water route, and which could not do so with the direct navigation. Nova Scotia coal could also be carried at a profit to the head of the continent as return freight, while it is now impossible to carry it far beyond Montreal at a profit.

This possibility of carrying the coal to the iron or the iron to the coal would render the development of the Canadian iron, and that industry about which the government have concerned themselves much of late years of easy accomplishment. And it must be remembered that the nickel and copper are close to the Ottawa route and about midway between the other commodities.

DULUTH, U. S., June 9th, 1894.

MCLEOD STEWART, ESQ.,

Of the Montreal, Ottawa and Georgian Bay Canal Co.,

Ottawa.

DEAR SIR :—

The question of a navigable waterway connecting Lake Huron with ocean navigation at Montreal by way of Lake Nipissing and the Ottawa River is one in which I have long taken great interest. The prosperity of the American Northwest, no less than of the Canadian Northwest, will be promoted to a greater degree by increased facilities for transportation to the seaboard, than by anything else which can be imagined. The settlement of the American Northwest did not fairly begin until it was settled that a lock and canal was to be constructed

to surmount the rapids in St. Mary's River at the outlet of Lake Superior. Another great wave of settlement began when the new lock was opened in 1881, and there is every reason to expect that a similar movement will follow the opening of the still greater locks now approaching completion on both the American and Canadian sides of the St. Mary's River, and the deepening of all the channels of the lakes so as to allow the passage of vessels drawing 20 feet of water. While it is impossible to move the farms of the Northwest to the seaboard, it is possible to bring the benefits of ocean navigation into the heart of the continent. Personally, I believe that the time will come, and I hope to live to see it, when ocean-going vessels can reach the docks of Port Arthur and Duluth. Every additional connection provided between the lakes and ocean navigation will promote the settlement and development of the whole Northwest, and the prosperity of its inhabitants.

The route from Lake Superior to Montreal by way of the Ottawa River is more nearly an air line than any other stretch of inland navigation which can be found *in all the world*, and presents, besides, physical conditions which will enable it to be improved for the passage of the largest vessels for a less cost than any other which can be found.

The question of a water supply on the summit level is the crucial one in all canal enterprises. In the surveys which were made years ago it was proposed to raise the level of Lake Nipissing, but it has been pointed out that this method would now be impracticable because of the settlements on the north shore of the lake and the construction of the Canadian Pacific Railway, some 30 miles of which would be flooded. But modern engineering practice, when there is an insufficient supply of water upon the summit level, is to lower the summit level until a sufficient water supply becomes available. There has been such a marvellous development in the line of explosives of high power and of machinery of various classes used in making excavations, that I have no doubt it will be found possible to make the additional cutting required to so lower the summit level that the canal can obtain its water supply from Lake Nipissing, without a material increase in the cost shown in the estimates formerly made. Even if this should not be proved to be true, the hydraulic engineers of the present day would be by no means at the end of their resources.

At a number of points in England, France and Belgium, flights of

locks of the ordinary type have been replaced by hydraulic lifts, which are found to have many advantages. First, in the increased speed of operation. One such lift at the Fontinettes overcomes an elevation of 53 feet 8 inches, the actual time required in the operation of lifting being less than 7 minutes, and the total time required for passing a boat from one level to the other, taking it out of the lock and putting another in position for transfer, being but a trifle over 15 minutes. Another result of the great improvements in this connection, and one which is so peculiar that at first sight it seems paradoxical, is that by this system a supply of water is continuously carried up from the lower level to the summit level by the ordinary course of operation. In almost every canal in the world there is approximately twice as much tonnage bound down hill as there is up hill. This is literally true of the St. Mary's Falls Canal, and would therefore be true of the canal route down the Ottawa. This curious result arises from the fact that the lifts are operated in pairs. When a boat enters one of the lock chambers, it necessarily displaces an amount of water equal in weight to the vessel and cargo ; if there be no vessel in the corresponding lock chamber, it will bring up more water than the other takes down, so that under the conditions as they will necessarily exist in the Ottawa Canal, the use of hydraulic lifts of this style would continually carry up to the summit level twice as much water as was taken down, minus the small amount necessary to overcome the friction and operate the lifts themselves. This, of course, would be true only of that portion of the canal east of the summit level, but there is, of course, no difficulty as to a sufficient water supply between Lake Nipissing and the Georgian Bay.

Another thing which would result in materially lessening the cost of construction is the fact that the Canadian Pacific Railway lies close to the entire route of the proposed canal, and the supplies and material necessary for its construction can therefore be put in position for a very much less cost than would have been possible in the conditions existing at the time the former survey was made. In this connection I wish to emphasize the fact that while the cost of water transportation is very much less than the cost of transportation by rail, and waterways are the most effective possible regulators of railway rates, waterways, instead of injuring railways, are of the greatest possible benefit to them. And this opinion is based, not upon theory, but upon the facts which I have been for many years collecting from all parts of the world. I have scores of illustrations of the beneficial effect in the enormous increase of rail-

way business which has followed the construction or improvement of waterways directly alongside of railways, and I have been utterly unable in all my researches to find a single case in which the result to the railway has been anything else than highly beneficial. One of the most striking examples is that of the canalization of the River Main from Frankfort to Mayence. There is a railroad on each bank of the river between these two cities. When the improvement of the river had been completed, the tonnage carried on the river showed an increase of 64 per cent. the first year and of 48 per cent. the second ; while the railroads, instead of finding a falling off in their business, were gratified to find an increase of 36 per cent. the first year and of 58 per cent. the second year after the completion of the improvements in the river, and co-incident with the enormous increase in the river tonnage which has been mentioned above. The Pennsylvania Central Railway owns and operates 900 miles of canal.

When the Baltimore and Potomac canal was almost utterly destroyed by floods a few years ago, the funds for its re-construction were supplied by the Baltimore & Ohio Railway, which parallels this canal all the way from the city of Washington to the heart of the Alleghany mountains. Instances like these could be multiplied to any extent if it were necessary. The underlying fact is that it is better for the community, and hence for the railways which serve the community, to turn over to the waterway the transportation of bulky raw material in which weight is very large in proportion to value, and in the transportation of which speed is not essential.

If the able gentlemen who are at the head of the C. P. R. have not already studied the beneficial effect of waterway improvements upon railway earnings, I am sure that if the facts are called to their attention, you will have no more earnest or ardent supporters to your enterprise than they will prove to be.

The development of manufacturing towns which would naturally follow the creation of the series of water-powers which will necessarily be brought about in the construction of such a canal would make the section of the C. P. R. between Montreal and Lake Nipissing the best paying portion of the line.

I have no need to tell you what the success of such an enterprise would mean for the City of Ottawa and the whole Ottawa Valley. It

would be a benefit to every city and every interest from Quebec and Montreal to Calgary and Edmonton, to Omaha and Helena, and it is to be hoped, therefore, that it may be inaugurated at once and pushed to completion at the earliest possible date.

Yours very truly,

S. A. THOMPSON,

Late Secretary of the Board of Trade of Duluth.

THE NORTH SHORE NAVIGATION COMPANY OF ONTARIO, Ltd.

The Steamers of this Line run in Close Connection with the Grand Trunk Railway at Collingwood, Wiarton, Penetanguishene and Midland, and with the Canadian Pacific Railway at Owen Sound.

M. BURTON,	JAMES SCOTT,	J. L. BURTON,	C. E. STEPHENS,
General Mgr.,	President,	Vice-President,	Sec'y-Treas.,
Collingwood.	Toronto.	Barrie.	Collingwood.

COLLINGWOOD, 9th Jan., 1893.

MCLEOD STEWART, Esq.

Ottawa.

DEAR SIR :—

Yours of 7th inst. to hand, and in reply would say *re* navigation of French River, our steamer "Favorite" runs up at the mouth of French River, about 2½ miles to where there is a small rapid, fall about five or six feet. Above this rapid there is navigable water for steamers drawing about seven feet of water for 30 miles. The tugs used in this part of the river are owned by the French River Towing Co.

The only business carried on at French River at present is the Ontario Lumber Co., and booming out of logs by Americans. The country along the shore is barren and rocky. The expense of a canal would not be very expensive to build as far as Lake Nipissing. The Ottawa waters I do not know. In my opinion the Trent Valley Canal is the proper canal to be built to serve the country.

Yours truly,

M. BURTON,

Manager.

MONTREAL, 31st May, 1893.

DEAR MR. STEWART :—

Your letter of yesterday is received. My report on the Ottawa navigation question is public property, paid for by the Government, and therefore you are free to use it as you may see fit without seeking my concurrence. I would just say, however, that were I called upon to review my views of five and thirty years ago I would have to criticize certain important points in the report unfavourably. Thanks for your offer of some copies of your intended reprint, they would of course be acceptable, though in telling you recently that there were no copies of the former print to be had I did not mean to be understood as implying that I was myself without one, as I have a copy bound up in a large volume with other reports. Parliament printed only a very small edition of the original report in blue-book form, but some years afterwards the Montreal Board of Trade had it reprinted with certain corrections of my own making. That edition has wholly disappeared; the blue-book one, of course, remains of record in the public archives.

I am,

Yours faithfully,

MCLEOD STEWART, ESQ.,

W. SHANLY.

Ottawa.

MONTREAL, 29th April, 1894.

DEAR MR. STEWART :—

Replying to your note of yesterday *re* "Ottawa Ship Canal," my report of 22nd March, 1858, was never *amended*, but, unaltered from the original blue-book edition, was reprinted in 1863, by order of the Board of Trade of Montreal. I suppose there were not very many copies of the reprint, at least none are discoverable now.

Your notice seems to cover the ground as fully as there can be any possible occasion for, though just to show how sharp I am, I have pencilled in a couple of little words.

A Bill such as the one you now propose was introduced in 1864, by the late Robert Bell, but I quite forget now, though then in Parliament and "aiding and abetting," whether a charter was enacted. Of forty-nine incorporators in the Bill of 1864, I can count but seven now living.

Yours faithfully,

MCLEOD STEWART, ESQ.,

W. SHANLY.

Ottawa.

COBOURG, May 20th, 1894

MCLEOD STEWART, ESQ.,

DEAR SIR :—

I enclose a lot of newspaper cuttings from various sources bearing upon the O. & S. C.; also a reply to "Senex's" very absurd letter. The hardest part about the thing seems to be to get people to appreciate the vastness of the commerce to be carried, and that pretty nearly the whole of the North American Continent, south as far as Tennessee, southward as far as Colorado and Texas, and west to the immediate vicinity of the Pacific Coast, as well as the whole of Canada, is tributary to the Port of Montreal and the Lower St. Lawrence. I got up a map once showing this, which is now in Montreal; I will write for it, or if in Montreal yourself, call at 15 Common Street, and ask for it. I am sorry that one of the *Empire* letters seem to have been mislaid, but perhaps I will find it yet. Thanks for your letter and promises. I am glad you have enlisted McDonell of Algoma. I tried to interest him and Marks of Port Arthur some years ago, but they wanted to make sure of the St. Lawrence canals first and would not move at the time. Said to be too much afraid of the millions. The very magnitude of the undertaking makes it attractive on the other side of the line especially. And with 60 millions spent on the Manchester canal, and about the same estimated for the Nicaragua, one need not be afraid of 50 millions for a scheme promising five times the returns of either of these.

Very sincerely,

(Signed,) HENRY K. WICKSTEED.

MONTREAL, 31st May, 1894.

DEAR MR. STEWART:—

I see by the *Journal* (thanks for the copy sent me), that you are going vigorously into the Ottawa Ship Canal matter, and contributing largely and valuably to the history of the project. Shall be glad to learn what progress you have made or hope to make with your Bill. The ventilation you are letting in upon this big question has set me to "reading up," so as to stir up my memory as to what I thought, wrote or said thirty odd years ago. You probably have now made all the use you require to make of my *book*; I feel lost without it in my present researches, so please let me have it back as soon as possible, and oblige,

Yours faithfully,

MCLEOD STEWART, ESQ.,

W. SHANLY.

Ottawa.

MONTREAL, 1st June, 1894.

DEAR MR. STEWART :—

Enclosed I send replies, such as I am now able to give, to the questions enclosed with your letter of day before yesterday—received this morning. As, doubtless, you have a copy of the questions, I keep the one you sent me for record with my other correspondence, etc., *re* Ottawa ship canal. My replies are of somewhat hurried character because I am expecting a call to New Brunswick, and so for some time to come might, possibly, not have an opportunity of giving the matter any closer attention.

Yours truly,

W. SHANLY.

MCLEOD STEWART, ESQ.

Ottawa.

OTTAWA VALLEY CANAL.

QUESTIONS SUBMITTED TO WALTER SHANLY, ESQ., C.E.,

BY MCLEOD STEWART.

1. As to the character of the route and its adaptation to being made navigable : first, for steamers and propellers of large size ; and second, for barges and other vessels of less draught of water, and the cost of opening the route in both points of view.

2. The advantages and disadvantages of this route as compared with other existing lines of communication.

3. The extent of the trade at present between the Western States, the great lakes, especially Lake Huron, and the ocean ; and its increase and development, and the proportion that would probably be attached to this line if opened.

4. The character of the region through which the line passes.

5. The probable effect upon the commerce and settlement of the country of the opening of this line of inter-communication.

6. Its advantages as a means of military defence.

7. The means to be adopted for the execution of the work.

8. Probable cost of a nine-foot canal.

9. If ample capital be provided how long will canal take to construct ?

10. Any general information not included in the foregoing.

11. In the event of the canal costing \$30,000,000, how would it turn out as a paying investment.

REPLIES TO QUESTIONS PUT BY MR. MCLEOD STEWART.

As to Q. 1.—My report of 22nd March, 1858, deals fully with the first part of this question. As to the second part—a barge navigation adapted for vessels of eight feet draft might be obtained at about three-quarters the cost of the larger work.

As to Q. 2.—Fully dealt with in report of 22nd March, 1858.

As to Q. 3.—Could not answer this question without much study of recent lake trade statistics—a subject I have not been following closely of late years.

As to Q. 4.—See report 22nd March, 1858.

As to Q. 5.—See report 22nd March, 1858.

As to Q. 6.—In the (it is to be hoped unlikely) event of war between Great Britain and the United States, victory will be with the side that holds the command of the lakes, and as a means to that end, for Great Britain (and Canada), the Ottawa route to Lake Huron would be of incalculable value.

As to Q. 7.—Have always been, and still am, of the opinion that the "Ottawa Ship Canal" can only be carried out as a Government work, or, at all events, as a work liberally subsidized, or interest on cost guaranteed by the Government.

As to Q. 8.—My report, already referred to, placed the cost of a ten-foot navigation at \$24,000,000, the estimate, however, was not based on an instrumental survey of the whole route, and I have good reasons now for thinking that it would be hopeless to seek for a greater depth than nine feet. I also think that the cost of a nine-foot navigation would mount up to the figure I formerly ventured to risk as the probable cost of a ten-foot work, namely, \$24,000,000; and that without making any deductions for the improvements made between Montreal and Ottawa since I reported on the whole project in 1858.

As to Q. 9.—With capital "at call" the work might be accomplished in five years.

As to Q. 10.—Nothing occurs to me just now.

As to Q. 11.—Taking the bushel of grain as the unit from which to calculate revenue it would require the transportation of 150,000,000 bushels at a toll of two cents per bushel to earn five per cent. per annum on \$30,000,000. As said in answer to question three, I have not now at hand the figures to enable me to make a cast of the possible quantity of grain likely to be attracted through the shortest and safest possible water route from Lakes Michigan and Superior to the ocean. Lake Superior alone sent out the equivalent of eighty million bushels last year.

1-6-94.

(Signed), W. S.

MONTREAL, 11th June, 1894.

DEAR MR. STEWART:—

Thanks for the blue-book, which arrived all right Saturday, but as yet the promised newspapers have not come to hand. Would like to see what your visitor from Duluth, Mr. Thomson, had to say of the big scheme.

Yours truly,

W. SHANLY.

MCLEOD STEWART,
&c., &c.

MONTREAL, 27th June, 1894.

DEAR MR. STEWART:—

Yours of yesterday received. The blank in Sec. 16 may very safely be filled with the word *four*. Three hundred (300) feet should be ample, but it may be as well to ask for the greater width, and if it passes unquestioned, all the better; take all you can get.

It would be well I think to add the following to Sec. 16 immediately after the word *Council*: *or where the flooding or drowning of land may be unavoidable through the construction of dams.*

About making a "report up to date" on the canal project—the changes that have come about "in the face of nature" since I wrote on the subject more than the third part of a century "way back," are so great, that were I to take hold of it again now I would have, as it were,

to begin at the beginning, and say many things differing widely from what I thought and wrote in 1858. What kind of a waterway is to be talked about now? Nine feet, twelve feet, fourteen feet or twenty feet. Engineers are not all like poor old Lesseps, growing bolder with age. He undertook, when over eighty, what would have been too big for him in his prime, and wrecked himself accordingly—and very sadly. The “Ottawa and French River Canal” project should be put into new hands now, with a head on top that shall have no preconceived ideas to forget.

Yours faithfully,

W. SHANLY.

MCLEOD STEWART, ESQ.,
Ottawa.

MONTREAL, 17th Oct., 1894.

DEAR MR. STEWART:—

Press of business has prevented my acknowledging sooner your letter of 11th inst. *re* Ottawa Ship Canal prospects.

I find that in June last I answered *seriatim* certain queries you propounded on this important subject, and that as to the leading question, now again put, “will there be sufficient traffic ten years hence to pay interest on \$30,000,000 at five per cent., say \$1,500,000?” I then said that the canal would have to carry 150,000,000 bushels of grain at two cents toll per bushel in order to pay interest and working expenses; the cost of the undertaking being assumed at \$30,000,000. Allowing for such back freights as there would be and for other sources of revenue such as hydraulic rents, etc., probably 100,000,000 bushels “down” freight would be sufficient.

Whether that quantity of grain, say three million tons, will find its way through the shortest possible channel from the lakes to tidal water when that shortest possible channel is ready for it, it would be little more than guess work to predict now.

Taking the returns of 1892, (the latest I have), the whole quantity of wheat and other vegetable products reaching Lake Erie was somewhere about seven million tons, or say 250,000,000 bushels; of which perhaps some fifteen millions only reached Montreal. All the rest found its way by canal and railway (chiefly railway) to New York. It is evident therefore that we must make some mighty change in the means and economy

of transport to secure to us the carrying of even one-half of the grain products now moving to the seaboard.

Taking New York and Montreal as the objective points for ocean shipment, the two great ports of Chicago and Duluth as starting points, the shortening of distances by means of the Ottawa Canal would be:—

Chicago to New York via Erie Canal.....	1,355 miles
“ Montreal via Ottawa.....	980 “

Miles saved.....	<u>375</u>
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Duluth to New York via Erie Canal.....	1,495 miles
“ Montreal via Ottawa.....	1,120 “

Miles saved.....	<u>375</u>
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It is on this great saving in distances that the success of the Ottawa scheme, as a private undertaking, must depend; the other routes, whether by the Erie Canal to New York or by the Welland to Montreal being practically free, the Erie absolutely so.

I believe that the Lake Superior ports, Duluth and Superior City (all one), and our own Port Arthur are, together, destined as grain marts to rival Chicago.

Lake Superior sent out last year the equivalent of nearly 80,000,000 bushels of grain; that quantity will certainly double within ten years, and supposing the Ottawa Canal to be completed within that time, certainly the Lake Superior grain would find it hard to give it the go-by even with its two-cent toll on the bushel.

The increased number of trips that a vessel could make in the season through the shortening of distance would go far to help the carrier to make up the two-cent toll he would have to pay as against free canals on the other routes.

But the all-important point first to be decided is the capacity to which Ottawa waters can be improved for the \$30,000,000 capital to be invested in the project. That question has still to be determined. My investigations of thirty-five years ago would have to a great extent to be made over again. Great changes, natural as well as artificial, have come about in those years, and much rethinking will have to be done

before the scale of navigation and its paying capacity when done can be safely pronounced upon.

I am unable to write or say more at present. The task your letter sets before me is a large one to be accomplished within a short time, and I fear that it will not be possible for me to say much more now, or even soon, than is embodied in the foregoing "general dissertation."

Yours very truly,

(Signed), W. SHANLY.

MCLEOD STEWART, ESQ.,

Ottawa.

OTTAWA, November 10th, 1894.

MCLEOD STEWART, ESQ.,

Barrister, Ottawa.,

SIR :—

In compliance with your request I herewith beg to submit the following report on the proposed Ottawa and French River Canal, its probable cost and the commercial advantage to be gained thereby. Owing to the very limited time at my disposal I cannot go into the matter so fully as the importance of the scheme deserves, but shall give such facts and figures as I have been able to collect and which I have every reason to know to be correct from my personal knowledge of the proposed route and of the country to be benefitted by its construction.

The route followed is along a secondary depression to the St. Lawrence and the great lakes, leaving the former near Montreal and connecting with the latter at the mouth of the French River. This depression runs in almost a direct line across, and thus avoids the great sinuosities of the main depression, and saves about 375 miles in the distance between Chicago and Montreal, or Chicago and New York, and a greater distance from Lake Superior ports, and of 842 miles in the distance from Duluth to Liverpool via New York.

With regard to the cost of construction, after examining very carefully Mr. Shanly's and Mr. Clarke's reports, and basing my estimate on the information furnished by them and my knowledge of the available improvements made at St. Ann, Carillon, Grenville and other points on

working introduced since their reports were made, together with the facilities of getting at the work afforded by the Canadian Pacific and the Ottawa, and taking into consideration the improved methods of other railways which now run contiguous to the proposed route for 380 out of the 430 miles, I can see no reason why the cost of construction should exceed \$15,000,000 for a canal of 10-ft. draught, and the time for construction need not exceed three years.

The advantages of this route over all others is chiefly the great saving in distance, 375 miles, which means in this case a saving in freight rates, an all important question for our Northwest provinces and for the Northwest states, the low price of grain now ruling having emphasized the necessity of securing the cheapest route possible if they are to hold their own against their competitors.

It has been estimated that a saving of from $1\frac{1}{2}$ to $2\frac{1}{2}$ cents a bushel can be made in the freight rates after paying toll. This would be ample to attract a large share of the traffic to and from the seaboard. The amount passing Detroit annually is over 20,000,000 tons, and is rapidly increasing, so that at the end of five years from now it will probably exceed 30,000,000 tons; if only 1-10th of this can be diverted, which it is quite reasonable to expect, a toll of fifty cents a ton on 3,000,000 tons will give a revenue of \$1,500,000 from this source alone, which is ample to provide for the interest and running expenses. The local trade along the canal will undoubtedly be very considerable; what with the exporting of lumber and minerals and the importing of coal and other material for use at the copper, nickel and other mines, which are now being developed in that section of the country, I consider it reasonable to expect a revenue from this source of at least \$250,000.00. The leasing of water powers for manufacturing purposes will also add materially to the revenue, as the company will have at their command a water power only second to that at Niagara. The conversion of a portion of this power into electricity will enable them to utilize a portion for towing along the canal, besides furnishing lighting and power to towns that will spring up along its banks, as well as to those now in its vicinity.

Other advantages that this route possesses over all others are that it is much cooler, which will enable grain and cattle to be taken through in much better condition. The rate of insurance will be less. No

delays from storms. Being entirely through our own territory, it will be free from any restrictions being imposed by the United States and will give us access by water to the upper lakes in the event of trouble with them.

In regard to the period of navigation, I consider it will be quite as long as through the Sault Canal.

I remain,

Your obedient servant,

R. ADAMS DAVY,
M. Can. Soc. C. E.



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